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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,527	06/28/2006	Hideki Toya	284525US0PCT	3452
22850 7590 04/29/2009 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER JACOBSON, MICHELE LYNN	
			ART UNIT	PAPER NUMBER
			1794	
			NOTIFICATION DATE	DELIVERY MODE
			04/29/2009	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/564,527	<b>Applicant(s)</b> TOYA ET AL.	
	<b>Examiner</b> MICHELE JACOBSON	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/9/09, 2/9/09, 10/27/08</u> .                                | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 and 5-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toya et al. U.S. Patent No. 6,107,411 (hereafter referred to as Toya) and Karabedian et al. U.S. Patent No. 4,626,455 (hereafter referred to as Karabedian).

3. Toya teaches a block copolymer (hereinafter referred to as the block copolymer (I)) consisting essentially of a vinyl aromatic hydrocarbon and a conjugated diene and satisfying the following conditions (1) to (5) or such a block copolymer satisfying the following condition (6) in addition to the conditions (1) to (5), and a heat shrinkable film made of such a block copolymer.

- a. (1) The weight ratio of vinyl aromatic hydrocarbon units to conjugated diene units is from 60:40 to 90:10.
- b. (2) The number average molecular weight of the block copolymer is from 40,000 to 500,000.
- c. (3) The ratio of E30/E10, where E30 is the storage modulus at a temperature of 30° C. and E10 is the storage modulus at a temperature of 10° C., is from 0.75 to 1.

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- d. (4) The block proportion of a vinyl aromatic hydrocarbon polymer contained in the block copolymer is from 70 to 100%, provided the block proportion= $W1/W0 \times 100$ , where W1 is the weight of block polymer chains of the vinyl aromatic hydrocarbon in the block copolymer, and W0 is the total weight of the vinyl aromatic hydrocarbon units in the block copolymer.
  - e. (5) Chains consisting of from 1 to 3 repeating units of the vinyl aromatic hydrocarbon contained in the block copolymer, are not more than 25%, based on the above W0.
4. Further, the present invention provides a block copolymer composition comprising the block copolymer (I) and the following polymer (II), and a heat shrinkable film made thereof:
- f. (II) at least one polymer selected from the group consisting of
    - i. a block copolymer consisting essentially of a vinyl aromatic hydrocarbon and a conjugated diene, which is different from the block copolymer (I)
    - ii. a vinyl aromatic hydrocarbon polymer
    - iii. a copolymer consisting essentially of a vinyl aromatic hydrocarbon and a (meth)acrylate and
    - iv. a rubber-modified styrene type polymer.
5. The block copolymer composition preferably comprises from 50 to 99.8 parts by weight of the block copolymer (I) and from 0.2 to 50 parts by weight of the polymer (II), provided that the total amount of the polymers (I) and (II) is 100 parts by weight.

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6. The vinyl aromatic hydrocarbon to be used for the production of the block copolymer (I) of the present invention may, for example, be styrene, o-methylstyrene, p-methylstyrene, p-tert-butylstyrene, 2,4-dimethylstyrene, 2,5-dimethylstyrene,  $\alpha$ -methylstyrene, vinyl naphthalene or vinyl anthracene. Particularly, styrene is commonly used.

7. The conjugated diene to be used for the production of the block copolymer (I) of the present invention may, for example, be 1,3-butadiene, 2-methyl-1,3-butadiene (isoprene), 2,3-dimethyl-1,3-butadiene, 1,3-pentadiene or 1,3-hexadiene. Particularly, 1,3-butadiene or isoprene is commonly used. The weight ratio of the vinyl aromatic hydrocarbon to the conjugated diene is from 60:40 to 90:10. (Col 1, line 66-Col 3, line4)

8. The proportion of chains consisting of from 1 to 3 repeating units (hereinafter referred to as s1 to s3) of the vinyl aromatic hydrocarbon in the block copolymer (I), is desired to be not more than 25%, based on the total weight of the vinyl aromatic hydrocarbon units in the block copolymer. If the proportion of s1 to s3 chains exceeds 25%, spontaneous shrinkage tends to be substantial, such being undesirable. The proportion of s1 to s3 chains is obtained by the following formula.(Col. 3, lines 59-67)  
The block proportion and the s1 to s3 chain proportion in the block copolymer (I) can be controlled by adjusting the amount of a randomization agent used at the time of copolymerizing the vinyl aromatic hydrocarbon with the conjugated diene. (Col. 5, lines 26-30)

9. The copolymer (iii) consisting essentially of a vinyl aromatic hydrocarbon and a (meth)acrylate is one which maintains transparency even when mixed with the block

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copolymer (I). It may be obtained by polymerizing the vinyl aromatic hydrocarbon as described for the production of the block copolymer (I), with a (meth)acrylate. The (meth)acrylate may, for example, be methyl acrylate, ethyl acrylate, butyl acrylate, isobutyl acrylate, hexyl acrylate, (2-ethyl)hexyl acrylate, methyl methacrylate, ethyl methacrylate, butyl methacrylate or (2-hydroxy)ethyl methacrylate. (Col. 7, lines 5-15)

10. The rubber-modified styrene type polymer (iv) can be obtained by polymerizing a vinyl aromatic hydrocarbon or a monomer copolymerizable therewith, in the presence of various elastomers. As the vinyl aromatic hydrocarbon, those described above for the production of the block copolymer (I), may be employed. As the monomer copolymerizable therewith, (meth)acrylic acid or a (meth)acrylate may, for example, be employed. As the elastomer, butadiene rubber, styrene-butadiene rubber, styrene-butadiene block copolymer elastomer, chloroprene rubber or natural rubber may, for example, be employed. A particularly preferred rubber-modified styrene type polymer may be high impact polystyrene (HIPS). (Col. 7, lines 21-33)

11. Toya recites that a film made from such a composition is excellent in impact resistance and spontaneous shrinkage resistance and may be used for heat shrinkable labels. (Col 15, lines 39-45)

12. Toya is silent regarding foaming the film and the use of such a foamed film in a multilayer label.

13. Karabedian teaches a multilayer label for containers comprising a foamed polystyrene layer and a skin layer comprising polystyrene and a block copolymer of styrene and butadiene. (Col. 1, lines 5-18) The skin and foam layers are recited to be

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oriented while they are being coextruded so that they will shrink down on the container when heated. (Col. 8, lines 3-4)

14. Regarding claims 1-3, 7, 17, 21, 23, 33 and 39: Both Toya and Karabedian are directed towards polystyrene labels. Foaming of polystyrene films for use in label applications is well known in the label making art as evidenced by the disclosure in Karabedian of a label comprising a polystyrene foam layer. (Col. 1, lines 5-13) It would have been obvious to one having ordinary skill in the art at the time the invention was made to have tried using the composition for the film recited by Toya to produce a foamed film for use in label applications because of the recitation in Toya that the composition produces films with excellent impact resistance and spontaneous shrinkage resistance. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have optimized the thickness of the labels produced depending on the structural integrity required for the label application. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have optimized the polymer recited by Toya for use in a foaming application and since the composition of the film recited by Toya is the same as the composition of the film claimed by applicant the film would therefore be expected to naturally exhibit the same properties of specific gravity as claimed in claim 1 and uniaxial elongation as claimed in claim 2. Karabedian specifically recites orienting (stretching) the foamed film in order to produce a label with heat shrink properties. The utilization of the composition of the film of Toya for a foamed label for containers produced by orientation (stretching) would have produced the invention as claimed in claims 1-3, 7, 17, 21, 23, 33 and 39.

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15. Regarding claims 5, 6, 8, 11-16, 18-20, 22, 24-28, 34-38 and 40-44:

Additionally, one of ordinary skill would have been motivated to replace the generic polystyrene in the foamed layer of the invention of Karabedian with the polystyrene composition as recited by Toya, since composition of Toya is recited to have excellent impact resistance and spontaneous shrinkage resistance. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized a foamed film comprising the composition of Toya as the foamed polystyrene layer in the multilayer film disclosed by Karabedian. A multilayer film produced by this combination used for labeling containers produced by orienting (stretching) the multilayer film comprising a foamed layer of the composition of Toya and a skin layer comprising polystyrene (a vinyl aromatic hydrocarbon polymer) and a block copolymer of polystyrene and butadiene (a block copolymer of a vinyl aromatic hydrocarbon with a conjugated diene) would have been the same as the invention claimed in claims 5, 6, 8, 11-16, 18-20, 22, 24-28, 34-38 and 40-44

16. Regarding claims 9, 10 and 29-32: The composition of Toya is the same as that claimed by applicant. It naturally flows that a foamed film produced from such a composition when used in a multilayer film would display the same characteristics recited by applicant in claims 9, 10 and 29-32.

### ***Response to Arguments***

17. Applicant's arguments filed 2/9/09 have been fully considered but they are not persuasive.



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18. Applicant has asserted on page 13 of the remarks that "The Examiner holds that it would have been obvious "to have tried using the composition [of Karabedian] for the film recited by [Toya et al] to provide a foamed film for use in label applications". This statement is incorrect. As clearly stated in the previous office action, it would have been obvious to use the composition recited in *Toya* to produce a foamed film such as was widely known in the art to be useful for label applications as was evidenced by *Karabedian* because of the excellent impact resistance and spontaneous shrinkage resistance of the composition recited by Toya. Applicant's arguments are not germane and therefore not found persuasive.

19. Applicant states on page 13 of the remarks that objection to claims 5-12 as being improper multiple dependent claims is traversed but fails to provide any rationale as to why this objection was improper. Nonetheless, applicant's amendments to claims 5-12 to remove the multiple dependencies present is sufficient to overcome the objection.

20. The IDS forms resubmitted by applicant have been considered and approved. Applicant's request that "since the dates of the IDS's are before the date of the Office Action and thus technically were part of the Official file as of the Office Action date...should the Examiner determine that a new ground of rejection needs to be made in the next Office Action relying in whole or in part on any of the references cited in the IDS's," that the action not be made final, has been considered but is moot since the Examiner has maintained the grounds of rejection stated in the previous office action.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **MICHELE JACOBSON** whose telephone number is (571)272-8905. The examiner can normally be reached on Monday-Thursday 8:30 AM-7 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571)272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michele L. Jacobson  
Examiner /M. J./  
Art Unit 1794

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